

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for performing motion estimation of image blocks on image frames in video image compression using an associative memory device including a directory memory having memory locations and an output memory including a plurality of memory locations, each of the plurality of memory locations of the output memory corresponding to at least one memory location of the directory memory, wherein the method comprises:

a) determining a location of an image block to be coded on a current frame;

b) determining a search area on a previous frame corresponding to the location of the image block on the current frame, the search area including a plurality of image blocks, each of the plurality of image blocks having a location on the previous frame;

c) determining image block average values for the locations of the plurality of image blocks included in the search area by using a shift of predetermined size;

d) determining an image block average value for the image block to be coded;

~~arranging the plurality of image blocks included in the search in a predetermined order based on the image block average values of the plurality of image blocks;~~

e) restricting the image block average values determined for the locations of the plurality of image blocks included in the search area to include only the image block average values which differ from the image block average value determined for the image block to be coded no more than a predetermined maximum error;

f) sorting the plurality of image blocks included in the search area by storing the restricted image block average values of the plurality of image blocks in the memory locations of

the directory memory of the associative memory device in an ascending or descending order; and
by

g) storing in the memory locations of the output memory corresponding to each memory location of the directory memory the locations of the each image block included in the search area and having an image block average value corresponding to the image block average value stored in the memory location of the directory memory;

h) using entering the determined image block average value of the image block to be coded as a key word for the associative memory device; and

i) outputting, from the corresponding memory locations of the output memory of the associative memory device, a restricted group of locations of the image blocks included in the search area;

j) calculating an error between the image block to be coded and each image block included in the search area corresponding to the restricted group of locations of the image blocks, wherein a partial distance elimination method is used for fastening the error calculation, and wherein the error calculation is started with the locations of the image blocks in which the corresponding image block average value stored in the memory location of the directory memory best matches the entered key word;

k) storing a minimum one of the calculated errors and the location of the corresponding image block;

l) repeating steps e) - k) for all the locations of the image blocks included in the restricted group of locations of the image blocks with the minimum one of the calculated errors stored in step k) used to replace the subsequent maximum error of step e) each time; and

m) outputting the location and the error of the image block in the search area best matching the image block to be coded, the error thus being the minimum error within all image blocks in the search area.

~~searching for an image block best matching the image block to be coded among the plurality of image blocks included in the search area using a partial distance elimination method, the search area being restricted based on a mean error.~~

2. (Previously Presented) Method as defined in claim 1, wherein:

a predetermined area of regular shape around the image block to be coded is used as the search area.

3. (Previously Presented) Method as defined in claim 1, further comprising:

defining an area comprised of one or more objects moving quickly between successive image frames,

and using the area as the search area.

4. (Previously Presented) Method as defined in claim 1, further comprising:

determining possible location areas of the image blocks by using a shift of one pixel, a half of a pixel or other fractional shift.

5. (Currently Amended) A system for performing motion estimation of image blocks from a first image frame to a second image frame in video image compression, the first image frame including a search area having a plurality of image blocks and the second image frame including an image block to be coded, wherein the system comprises:

means of determining image block average values of locations of the image blocks included in the search area corresponding to a location of the image block to be coded by using a predetermined shift on the first image frame;

~~means of sorting the image blocks included in the search area based on the image block average values of the image blocks; and~~

~~means of searching for a variant best matching image block for the image block to be coded among the image blocks included in the search area;~~

means of determining an image block average value for the image block to be coded;

means of restricting the image block average values determined for the locations of the image blocks included in the search area to include only the image block average values which differ from the image block average value determined for the image block to be coded by no more than a predetermined maximum error;

~~an associative memory device for sorting the image blocks included in the search area, the associative memory device~~ including a directory memory having memory locations and an output memory including memory locations corresponding with at least one memory location of the directory memory, the directory memory storing the image block average values of the image blocks included in the search area in an ascending or descending order and the output memory storing the locations of the image blocks, each memory location of the output memory storing the location of ~~[[an]]~~ each image block included in the search area having an image block average value corresponding with the image block average value stored in the corresponding memory location of the directory memory, and wherein the determined image block average value of the image block to be coded is used entered as a key word of the associative memory device;

~~means for restricting a group of the image blocks in the search area based on a mean error; and~~

means of outputting from the corresponding memory locations of the output memory of the associative memory device a restricted group of locations of the image blocks included in the search area;

means of calculating an error between the image block to be coded and each image block included in the search area corresponding to the restricted group of locations of the image blocks, wherein a partial distance elimination method is used for fastening the error calculation, and wherein the error calculation is started with the locations of the image blocks in which the corresponding image block average value stored in the memory location of the directory memory best matches the entered key word;

means of storing a minimum one of the calculated errors and the location of the corresponding image block;

means of repeating operation of the means of restricting, the associative memory, the means of outputting, the means of calculating, and the means of storing for all the locations of the image blocks included in the restricted group of locations of the image blocks with the minimum one of the calculated errors used to replace the predetermined maximum error each time; and

means of outputting the location and the error of the image block in the search area best matching the image block to be coded, the error thus being the minimum error within all image blocks in the search area.

means for searching for a best match among the image blocks included in the restricted group of image blocks by using a partial distance elimination method.